

ABSTRACT

Android-Based Application Design for Calculating Spectrum Response and Shear Force in Building Structures (Based on Indonesia Seismic Hazard Map 2017)

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The spectrum response in the earthquake area has been summarized in the Indonesia Seismic Hazard Map which can assist a civilian to calculate the earthquake load of a building. The growth of smartphones user shows fantastic number, especially in Indonesia. With the update of Indonesia Seismic Hazard Map and technological developments, we need a mobile application with calculation system that can provide spectrum response into with straightforward method, easily accessed and accurate via smartphone. With that in mind, SPECTRO is an android-based application design for calculation of spectrum response and shear force on a building structur. Calculations used for this application are based on data from Indonesia Seismic Hazard Map 2017. This application is created using JavaScript programming language, Apache Cordova development kit, and Ionic 4 for application display design. Application testing is done using black box, white box, and beta testing method to ensure the accuracy of the system. The SPECTRO application is 99% accurate and easy to operate, which make it suitable to use not only for engineers but also for common people.

Keywords: *Spectrum Response, Shear Force, Smartphone, Application, Android*

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